

Mind Reading Computer Technology

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ABSTRACT

Modern technology has led to many new inventions to cater the growing needs of people. One of the leading inventions is that of mind reading computer. Mind is an abstract entity, which consists of sensations emotions, feelings, desires and intentions. Mind reading is a way to detect or infer person's mental states. The technology is based on the ability to read human mind with use of computers. These computers analyse human brain to detect what it is trying to convey. The paper deals with brief study of major aspects involved in mind reading technology. It provides an effective way to blend human mind and computers.

Keywords: Mind reading computer, man-machine interaction, mind blindness, facial expression, futuristic headband, neuroscience, mind controlled wheelchair.

I. INTRODUCTION

As you were reading the abstract, your mind tends to figure out what I meant to convey regarding this mind reading technology. People express their mental states, emotions, thoughts and desire all the time through facial expressions, vocal nuances and gestures. This is true even when they are interacting with machine.

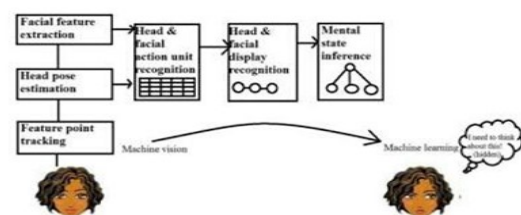
Mind reading system is coordination of human psychology and computer techniques. The ability to attribute mental states to others from their behaviour and to use that knowledge to guide our own action and predicts those of others is known as theory of mind or mind reading. Existing human-computer interface are mind blind -oblivious to users mental states and intentions. Even if they take the initiative, they are often misguided and simply frustrate the user.

Science creates computer that can decode your thoughts and put them into words. The understanding of human's thoughts is one of the most complex tasks. The purpose of a mind reading computer is to enhance human-computer interaction through emphatic responses and to enable computers to initiate interactions with users.

II. WHAT IS MIND READING?

Mind reading may be defined as inferring of the human thoughts emotions and desires, etc. The simplest method of mind reading is by simple understanding the facial expression given by the person as people express their mental states mostly through facial expression and gesture. Using a digital video camera the mind reading computer system analyse a person's facial expression in real time and infers that persons underlying mental state.

FLOW CHART OF MIND READING COMPUTER



The above flow chart recognises facial actions to infer mental state of a person.

III. WHY MINDREADING?

The mind reading computer system presents information about your mental state as easier as a keyboard and mouse presents text and commands. Current progress in Cambridge are considering further inputs such as body posture and gestures to improve the inference we are also looking at the use of mind reading to support online shopping and learning systems. The mind reading computer system may also be use to monitor and suggest improvements in human interaction . To implement this system in cars, to detect driver's mental states such as drowsiness, distraction and anger. The Affective Computing Group at MIT Media Laboratory is developing an emotional-social intelligence prosthesis that exposes new technologies to augment and improve people's social interactions and social states.

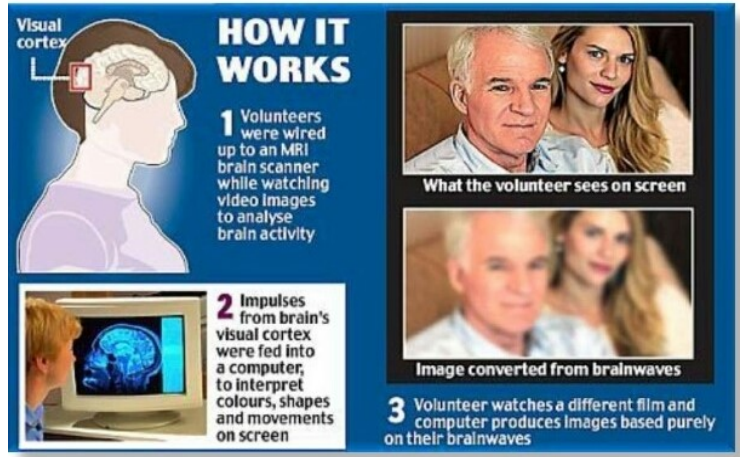
IV. HOW DOES IT WORKS ??

Futuristic Head Band:



The system of it contains a head band that is repeated by send light emission to the tissues of the head where it is active. The band first measures the oxygen and then measures the blood around the people's brain which uses a technology called as Functional Near-Infrared Spectroscopy(FNIRS). The user who uses this mind has a Futuristic Head Band.

Working Principle :



The above diagram illustrates the working mechanism of mind reading system.

Neuroscience :



It deals with anatomy and modular biology of neurons. A neurons is a nerve cell that is basic building block of nervous system. Neurons are specialized to transmit information throughout the body. It is done by measuring oxygen level of blood using FNIRS.

Techniques:

a) Facial Effect Detection :

It is done using hidden Markov Model,Neural Network processing or active appearance model.

b) Emotional Classification :

Classification by Paul Ekman Anger,Fear,Happiness, Disgust,Sadness, Surprise.

c) Facial Electromyography :

It is used to measure electrical activities of Facial Muscles. The muscles used are "Corrugator Supercilli Muscles"

EVALUATION OF RESULTS

FNIRS light weight head band sensors the non invasive experimental subjects of the equipments for which users are asked to count the squares on the cube displayed on screen. Observations have been done in NASA by silently reading the spoken words and analyzing the nerves in mouth of user and final result by the throat measures. The measuring of all stress factors is typically done in a computer program which can be measured by users. The stress factors include distractions, disruptions, perplexing and anger. With or without the facial movements biological signals arise when reading or speaking.

V. APPLICATION

Mind Controlled Wheelchair



University of Electrocommunications in Japan developed a wheelchair in control of virtual keyboard to turn with the help of thinking of moving left, right, forward, back. The machine is designed to take the brain waves and get points through the computer systems and translate them into speech and audio which was useful for a person who is paralysed with Amyotrophic Lateral Sclerosis (ALS).

VI. ADVANTAGES

- 1) Can read minds
- 2) Help Paralytic patients
- 3) Help Handicapped people
- 4) Help Comma patients
- 5) Help People who can't speak
- 6) Can be used for Military purposes and Sting operations

- 7) Can be combined with with consoles and used for mind gaming, robotics and stuff
- 8) Eliminate the capability to lie.

VII. DISADVANTAGES

- 1) Breach in privacy
- 2) Can extract through an individual an important, secure and confidential information of an individual, state or even a country
- 3) If developed or used by sinners can be highly dangerous
- 4) Eavesdropping
- 5) No way to neutralise this technology

VIII. CONCLUSION

Mind reading is the ability to infer people's mental state and use that to make sense and predict their behaviour. In this paper we had a brief study regarding major aspects of mind reading techniques, applications, result, advantages, disadvantages, etc. IBM says that mind reading computers are no longer from the world. Computer Scientist are biomedical engineers at Tufts University are collaborating to make this a reality some day soon. Thus, the mind reading technology will bring amusing changes in technical fields which will be rather more efficient and useful.

IX. REFERENCES

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